James Spinymussel

Pleurobema collina

Description - This freshwater mussel is found in the upper James and Dan River basins. The species has declined rapidly during the past two decades and now exists only in small, headwater tributaries of the upper James River basin in Virginia and West Virginia. In 2000, it was discovered in the Dan River basin in North Carolina and Virginia. The James spinymussel is a small freshwater mussel slightly less than three inches in length. Adults have a dark brown shell with prominent growth rings and occasionally, short spines on each valve. Young mussels have a shiny yellow shell with or without one to three short spines.

Life History - Suitable habitat for this species includes free-flowing streams with a variety of flow regimes. The James spinymussel is found in a variety of substrates that are free from silt. Like other freshwater mussels, this species is a filter feeder. It feeds on plankton collected from water that is passed over its gills. Reproduction occurs sexually. Females carry eggs in their gills. During spawning, the male releases sperm into the water column and the sperm is take into the female through the gills. The resulting larvae (known as glochidia) are released from the female into the water column and must attach to a fish host to survive. While attached to the fish host, development of the glochidia continues. Once metamorphosis is complete, the juvenile mussel drops off the fish host and continues to develop on the stream bottom. Known fish hosts for this species include the bluehead chub (*Nocomis leptocephalus*), rosyside dace (*Clinostomus funduloides*), blacknose dace (*Rhinichthys atratulus*), mountain redbelly dace (*Phoxinus oreas*), rosefin shiner (*Lythrurus ardens*), satinfin shiner (*Cyprinella analostana*), central stoneroller (*Campostoma anomalum*), and swallowtail shiner (*Notropis procne*).

Conservation - The James spinymussel was federally listed as an endangered species on July 22, 1988. The primary reason for its decline is habitat loss and modification. Threats to this species include siltation, invasion of the non-native Asiatic clam (*Corbicula fluminea*), impoundment of waterways, water pollution, stream channelization, sewage discharge, agricultural runoff including pesticides and fertilizers, poor logging and road/bridge construction practices, and discharge of chlorine.

What You Can Do To Help - If you reside on property that borders a stream or other waterway, avoid using chemicals or fertilizers. To help control erosion and reduce runoff, maintain a buffer of natural vegetation along streambanks. Install fencing to prevent livestock from entering streams to reduce trampling of mussels, siltation, and input of waste products. Protecting water quality is the most effective way to conserve mussels.

To find out more about the James spinymussel contact:

Virginia Department of Game and Inland Fisheries
P.O. Box 11104
Richmond, Virginia 23230
(804) 367-1000

References

Hove, M.C. and R.J. Neves. 1994. Life history of the endangered James spinymussel *Pleurobema collina* (Conrad, 1837) (Mollusca: Unionidae). American Malacological Bulletin 11(1):29-40.

Neves, R.J. 1991. James spinymussel. Pages 281-282 in K. Terwilliger, ed. Virginia's Endangered Species, Proceedings of a Symposium. McDonald and Woodward Publishing Company, Blacksburg, Virginia.

U.S. Fish and Wildlife Service. 1990. James spinymussel (*Pleurobema collina*) recovery plan. Newton Corner, Massachusetts.

U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061
(804) 693-6694
http://www.fws.gov
June 2003